

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
18 August 2005 (18.08.2005)

PCT

(10) International Publication Number
WO 2005/076632 A3

(51) International Patent Classification⁷: **H04N 7/50**, 7/26

(21) International Application Number:
PCT/US2005/000755

(22) International Filing Date: 11 January 2005 (11.01.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/540,634 30 January 2004 (30.01.2004) US

(71) Applicant (for all designated States except US): **THOMSON LICENSING S.A.** [FR/FR]; 46, Quai A. Le Gallo, F-92100 Boulogne-Billancourt (FR).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **YIN, Peng** [CN/US];

65 Warwick Road, West Windsor, NJ 08550 (US).
BOYCE, Jill, MacDonald [US/US]; 3 Brandywine Ct., Manalapan, NJ 07726 (US).

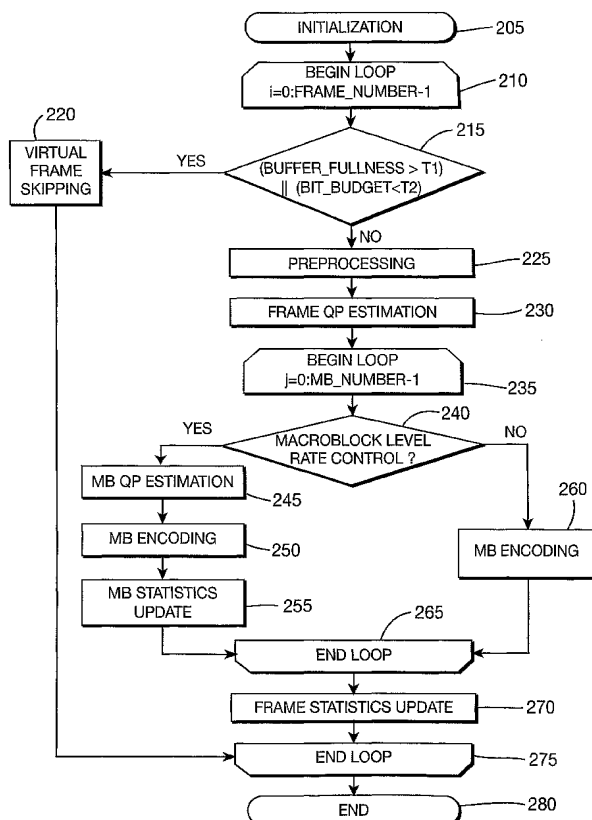
(74) Agent: **TRIPOLI, Joseph, S.**; c/o Thomson Licensing Inc., 2 Independence Way, Suite 2, Princeton, NJ 08540 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH,

[Continued on next page]

(54) Title: ENCODER WITH ADAPTIVE RATE CONTROL FOR H.264



(57) Abstract: A video encoder (100) is disclosed, the encoder for encoding image frames that are divisible into macroblocks. The video encoder (100) includes means (130) for generating a QP estimate for the macroblocks of an image frame. The video encoder further includes means (130) for selection of a frame level quantization parameter (QP) for the image frame, using one of mean, median, and mode of QP estimates for the macroblocks. A method for encoding video is disclosed for encoding image frames that are divisible into macroblocks. The method generates (225) a quantization parameter (QP) estimate for the macroblocks of an image frame and selects (230) a frame level QP for the image frame, using one of mean, median, and mode of QP estimates for the macroblocks.



GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:
29 December 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.